T E C H N I C A L M E M O R A N D U M

Utah Coal Regulatory Program

April 6, 2004

TO: Internal File

THRU: Wayne Western, Team Lead

FROM: Priscilla Burton, Environmental Scientist, III

RE: Revision of Chapters 5, Canyon Fuels Co., Soldier Canyon Mine, C/007/0018, Task ID #1829

SUMMARY:

During the review of Task #1668 and conference call with the Permittee on January 7, 2003, the importance of the soils handling aspects of the revision to Chapter 5 was recognized. Consequently, I am reviewing the effects of the revision of Chapter 5 (Task 1829) on the soils handling and redistribution at the Soldier Canyon Mine.

The total disturbed area at the topsoil storage site is 8.6 acres. That portion disturbed for Soldier Canyon Mine topsoil/subsoil/boulder storage is 2.3 acres. There are 4,414 cu yds of subsoil and 3,560 cu yds of topsoil stored at the storage site. These volumes have been used in the calculations for the backfilling and grading plan.

The total disturbed area is 14.6 acres, of which 10.3 acres are pre-SMCRA and 4.3 acres are post-SMCRA (page 5-67 Chap 5). The topsoil and substitute topsoil available for reclamation is 16,704 CY, of which 5,090 CY are designated for the reclamation of the topsoil storage area and the sediment pond (Chapter 2, page 2-29).

There will be 25,643 CY of excess fill and topsoil redistributed over the 14.6 acre mine site (less the 1.1 acre sediment pond and less the 0.73 acre stream channel and less the 0.74 acre county road equates to 12.03 acres). Thus the Division calculates that the final reclamation contours will be sixteen inches above those shown on Map5.42a. (Map 5.42a has two foot contours.)

The information under review was received in January and March of 2004 and by fax on April 5, 2004.

TECHNICAL ANALYSIS:

OPERATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Topsoil Removal and Storage

There are 4,414 cu yds of subsoil and 3,560 cu yds of topsoil stockpiled at the Soldier Canyon storage site (Chap 5 revised pg 5-57 and 5-64 and Figures 2 and 3, Appendix 2E).

Exhibit 5.21-2, referred on pages 2-31, 2-32 and 2-39 of the MRP shows the original topsoil storage site configuration in 1992. Since then, the topsoil storage site has expanded to 8.6 acres with 7.8 acres being disturbed. Of those 7.8 acres, 2.3 acres are used as storage of topsoil, subsoil and landscape boulders/rock for the Soldier Creek Mine (p 5-33 Chapter 5 of the revision and Plate 2-3 of Appendix 2-F).

Findings:

The information provided meets the requirements of Soil Resource Information.

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Acid- and Toxic-Forming Materials and Underground Development Waste

A maximum of 1,000 CY of underground development waste may be temporarily stockpiled in the location shown on Exhibit 5.21-1a found in MRP Volume 6 (p 5-42, Section 5.28). Waste stockpiled for longer than three months will be composite sampled (MRP page 5-46). Samples will be analyzed according to Table 6 of the Division's 1988 Guidelines for Topsoil and Overburden. Table 6 includes the analysis of pH, EC, SAR, Se, B, and ABP, among other parameters.

Underground development waste was utilized for the development of pads, roads, and culvert backfill at the site (p5-42, Section 5.28). The material used in construction was analyzed prior to use (Illustration 10.2.6-1 and 10.2.6-2, Appendix 10, Volume 5 of the MRP). Section 5.28 indicates that all underground development waste used in the construction of the culvert/pad extension will be used to backfill the highwalls and covered with four feet of material (page 5-42, Section 5.28). These statements were made in the MRP because of the chemical characteristics of the waste (the SAR value of 24.5 units and EC of 20.4 mmhos/cm, see Illustrations 10.2.6-1 Appendix 10, Volume 5 of the MRP).

The cut and fill balance for Pre-SMCRA areas is given in Table 5.42-1. According to this table, there is approximately 506,139 cu ft (CF) or 18,745 cubic yards (CY) of excess cut within the operations area. Soils within the top eighteen inches of the regraded site will be analyzed for topsoil suitability criteria (Section 2.43, Chapter 2).

In addition, the post-SMCRA areas will receive an additional twelve inches of topsoil and the pre-SMCRA areas will receive approximately 5 inches of topsoil (page 5-58, Section 5.28).

Findings:

The information provided meets the requirements of Hydrologic Information.

RECLAMATION PLAN

BACKFILLING AND GRADING

Regulatory Reference: 30 CFR Sec. 785.15, 817.102, 817.107; R645-301-234, -301-537, -301-552, -301-553, -302-230, -302-231, -302-232, -302-233.

Analysis:

General

The cut and fill balance for pre-SMCRA areas is given in Table 5.42-1. According to this table, there is approximately 506,139 CF or 18,745 CY of excess cut within the operations area. Backfilling the portals and shafts further the volume of excess fill by 67,305 CF or 2,493 CY (Table 5.42-2). The excess fill will also be used to fill the volume currently occupied by the Soldier Creek culvert (213,427 CF or 7,904 CY, page 5-50). The volume of excess fill is thus reduced to 8,349 CY (page 5-56).

The volume of fill available increases to a total of 18,259 CY, when the fill is displaced by 9,910 CY of filter gravel and riprap during construction of the stream channel (p 5-56). In addition to this fill, there is 7,974 CY of stored topsoil and subsoil, but 590 CY will remain to reclaim the stockpile site. Thus the fill and topsoil amounts to 25,643 CY (p 5-56).

There will be 25,643 CY of excess fill and topsoil redistributed over the 14.6 acre mine site (less the 1.1 acre sediment pond and less the 0.73 acre stream channel and less the 0.74 acre county road). Thus the Division calculates that the final reclamation contours will be sixteen inches above those shown on Map5.42a. (Map 5.42a has two foot contours.)

The locations of cut/fill are shown on Map 5.42a.

Post-mining contours are shown on Map 760a.

Findings:

The information provided meets the requirements of Backfilling and Grading.

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Redistribution

Plans for removal of topsoil from the topsoil storage site are provided in Section 5.8 of Chapter 5.

The total disturbed area is 14.6 acres, of which 10.3 acres are pre-SMCRA and 4.3 acres are post-SMCRA (page 5-67 Chap 5). The volume of topsoil and substitute topsoil material available for reclamation is as follows:

- 310 CY of substitute topsoil at the sediment pond
- 3,920 CY of substitute topsoil under the parking asphalt
- 4,500 CY of substitute topsoil in the sediment pond embankment
- 7,974 CY of topsoil and substitute topsoil at the storage site (includes 590 CY that will remain to reclaim the storage site.

Total = 16,704 CY of topsoil and substitute topsoil available to reclaim the mine site.

This would provide ten inches of topsoil over the entire site. However, the 590 CY of topsoil is dedicated for reclamation of the topsoil storage site. And 4,500 cu yds of sediment

pond embankment soils will be used only to cover the 1.1 acre sediment pond (for a final topsoil depth in the sediment pond location of 2.5 ft). Thus the topsoil available to reclaim the central facilities area is 11,614 CY.

The 7,384 cubic yards stored at the topsoil storage site along with the 3,920 CY in the parking pad and the 310 CY at the sediment pond (a total of 11,614 CY) are dedicated for the 4.3 acres of post-SMCRA disturbance less the 1.25 acres of stream channel and county road. The stored topsoil would cover the 3.05 acres to a depth of twenty seven inches. However, the plan calls for one foot of topsoil (page 5-58) over the post-SMCRA area, requiring only 4,921 CY. The remaining topsoil (6,693 CY) will be applied to the pre-SMCRA disturbed area (10.3 acres less the 1.1 ac sediment pond and 0.24 acres of stream channel which equates to 8.96 acres (p 5-58). The pre-SMCRA areas will receive approximately 5-6 inches of topsoil over the 2.5 ft of graded fill (see Reclamation Plan/Backfilling and Grading above).

Findings:

The information provided meets the requirements of Topsoil Redistribution.

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

Determination of Bond Amount

The revision of Chapter 5 itemizes the as-built volumes of topsoil and subsoil (4,414 cu yds of subsoil and 3,560 cu yds of topsoil) stored at the storage site. These volumes are used for calculating the bond, see p 5-63 and Appendix 1-A for bond calculations.

The 20 ft diameter ventilation shaft was never constructed and is not included in reclamation costs (page 5-50).

Findings:

The information provided meets the requirements topsoil and subsoil requirements for Bonding.

RECOMMENDATIONS:

The revision of Chapter 5 should be approved based on the information received by Fax on April 5, 2004.

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